

S/N 09/992,525

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Jonathan S. Goldick Examiner: Boutah, Alina A.
Serial No.: 09/992,525 Group Art Unit: 2143
Filed: November 13, 2001 Docket No.: MS171156.1/40062.123US01
Title: METHOD AND SYSTEM FOR MODIFYING LOCK PROPERTIES IN A
DISTRIBUTED ENVIRONMENT

CERTIFICATE UNDER 37 CFR 1.8

I hereby certify that this paper or fee is being transmitted electronically to the U.S. Patent Office on May 8, 2007.

By: 

Name: Jennifer Week

AMENDMENT

Mail Stop Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313

Dear Sir:

In response to the Office Action mailed February 8, 2007, please amend the above-identified application as follows:

Amendments to the Claims begin on page 2 of this paper.

Remarks/Arguments begin on page 6 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. Please amend the claims as follows:

Listing of Claims

1. (Currently Amended) A method of modifying properties of a lock object associated with a resource in a distributed environment, wherein the lock object has a lock owner, the method comprising:

receiving a request to modify at least one property associated with the lock object, wherein the request is created using a Web Distributed Authoring and Versioning protocol, originates from a requesting client computer system, and is transmitted over the Internet;

analyzing the request to determine whether the request is made by the lock owner; and
if the request is made by the lock owner, modifying the at least one property associated with the lock object without unlocking the resource associated with the lock object.

2. (Currently Amended) ~~A~~The method as defined in claim 1 wherein the method further comprises:

following the determination of whether the request is made by the lock owner, determining whether the resource is locked by another client computer system that may conflict with the requested modification; and

if the resource is locked by a conflicting lock, denying the received request.

3. (Previously Presented) A method as defined in claim 1 wherein the request relates to modifying a lock type property of the lock object.

4. (Previously Presented) A method as defined in claim 1 wherein the request relates to the modification of the lock scope property of the lock object.

5. (Previously Presented) A method as defined in claim 1 wherein the request relates to the modification of a lock ownership.

6. (Original) A computer program product readable by a computer and encoding instructions for executing the method recited in claim 1.

7. (Original) A computer program product readable by a computer and encoding instructions for executing the method recited in claim 5.

8. (Currently Amended) A computer-readable medium having stored thereon a locked resource, wherein the locked resource comprises:

a resource object data section for storing actual object data;

a lock object, wherein the lock object comprises a plurality of properties, wherein a first property identifies a lock owner, and wherein ~~the first property~~ properties may be modified ~~by to change~~ the lock owner without unlocking the locked resource ~~associated with the lock object~~.

9. (Currently Amended) A computer-readable medium as defined in claim 8 wherein a second property relates to the resource object and wherein the second property may be modified by the lock owner to associate the lock object with a second resource object.

10. (Canceled)

11. (Currently Amended) A system for managing access of one or more resources by a plurality of processes in a distributed environment, the system comprising:

a receive module for receiving resource requests created using a Web Distributed Authoring and Versioning protocol from the plurality of processes, wherein the receive module receives a request transmitted over the Internet from a requesting process that includes modification information concerning at least one property of a lock object associated with a requested resource;

a determination module operable to determine whether the requesting process owns the lock object; and

an update module operable to modify the at least one property of the lock object as set forth in the modification information upon a determination that the requesting process owns the

lock object, wherein modifying the at least one property occurs without unlocking the resource associated with the lock object.

12. (Previously Presented) A system as defined in claim 11 wherein the determination module also determines whether there is a conflicting lock associated with the requested resource and wherein the update module does not modify the at least one property of the lock object upon a determination that a conflicting lock exists.

13. (Previously Presented) A system as defined in claim 11, wherein the lock object has a lock type property, and wherein the update module modifies the lock type property as set forth in the modification information.

14. (Previously Presented) A system as defined in claim 11, wherein the lock object has a lock scope property, and wherein the update module modifies the lock scope property as set forth in the modification information.

15. (Previously Presented) A system as defined in claim 11, wherein the lock object has a lock ownership property, and wherein the update module modifies the lock ownership property as set forth in the modification information to thereby transfer the lock object from one process to another.

16. (Original) A system as defined in claim 11 further comprising a transfer module for transferring ownership of the lock object from the requesting process to another process.

17. (Canceled)

18. (New) A method as defined in claim 1 wherein the request further relates to the modification of a resource identifier property, and if the request is made by the lock owner, modifying the resource identifier property to associate the lock object with a second resource.

19. (New) A computer-readable medium as defined in claim 8, wherein a second property identifies a lock type.

20. (New) A computer-readable medium as defined in claim 8, wherein a third property identifies a lock scope.

21. (New) A system as defined in claim 11, wherein the lock object has a resource identifier property, and wherein the update module modifies the resource identifier property as set forth in the modification information.

22. (New) A system as defined in claim 21, wherein the update module modifies the resource identifier property to associate the lock object with a second resource.

REMARKS/ARGUMENTS

This Amendment and the following remarks are intended to fully respond to the Office Action mailed February 8, 2007. In that Office Action, claims 1-17 were examined, and all claims were rejected. More specifically, claims 1-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jeffords et al. (USPN 6510478) in view of Simmons et al. (USPN 6704767); and claim 17 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Jeffords et al. in view of Simmons, in further view of Applicant's admitted prior art. Reconsideration of these rejections, as they might apply to the original and amended claims in view of these remarks, is respectfully requested.

In this Response, claims 1, 2, 8, 9, and 11 have been amended. Claims 10 and 17 have been canceled, and claims 18-22 have been newly added.

Interview Summary

The undersigned thanks Examiner Alina Boutah for the telephone interview conducted on April 23, 2007. During the interview, the claims, including claim 1, were discussed in relation to a proposed claim amendment. Additionally, the Jeffords and Simmons references were discussed in relation to the currently pending claims. Examiner Boutah suggested that the claims be amended to include additional language that further distinguishes the claims from the cited references. No agreement was reached on allowance of any claims.

Claim Amendments

Claim 1 has been amended to recite "receiving a request to modify at least one property associated with the lock object, wherein the request is created using a Web Distributed Authoring and Versioning protocol, originates from a requesting client computer system, and is transmitted over the Internet." Claim 8 has been amended to recite "a lock object, wherein the lock object comprises a plurality of properties, wherein a first property identifies a lock owner, and wherein the first property may be modified to change the lock owner without unlocking the locked resource." Claim 11 has been amended to recite "a receive module for receiving resource requests created using a Web Distributed Authoring and Versioning protocol from the plurality of processes, wherein the receive module receives a request transmitted over the Internet from a

requesting process that includes modification information concerning at least one property of a lock object associated with a requested resource.” Support for these amendments can be found in the specification at least on page 6, lines 1-20; page 16, lines 1-5; claims 5, 10, 15, and 17; and in FIGS. 1 and 4.

The claim amendments are made for purposes of expediting prosecution of the present application. Applicant maintains that the previously pending claims are patentable over the references cited in the office action.

Claim Rejections – 35 U.S.C. § 103

Claims 1-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jeffords et al. (USPN 6,510,478) hereinafter “Jeffords,” in view of Simmons et al. (USPN 6,704,767) hereinafter “Simmons.” Applicant respectfully traverses the rejection, because the references cited in the Office Action do not teach or suggest the combination of elements found in the amended claims, and there is no motivation to combine the references cited by the Examiner.

As previously described, Jeffords teaches a method for coordinating synchronization between processes that share an object “so that the shared object is accessed by one and only one process at a time.” *Jeffords*, col. 1, lines 25-30. Jeffords does not refer to properties of any kind in the context of such locks. Jeffords refers only to “locks” in general and does not disclose any lock properties, e.g., shared/exclusive, advisory/mandatory, read/write, and therefore cannot teach modifying of such properties as claimed and disclosed by embodiments of the present invention. It is also noteworthy that Jeffords’ teaches exclusive access by only one process. Jeffords explicitly states that the “shared object is accessed by one and only one process at a time.” *Jeffords*, col. 1, lines 25-30. Jeffords further states that “only the lock owner process can grant control of the lock, and thus control of the shared object, to a requesting process. If the lock owner process determines that the lock is already controlled by another process, the requesting process will have to wait until control of the lock has been returned to the lock owner process.” *Id.* at col. 2, lines 55-62. Jeffords clearly emphasizes the exclusive nature of its locks.

Simmons describes a system for managing locks that give permission to access resources. Simmons discloses storing information about which locks have been granted for a resource, at both “a master node and at the nodes on which are located processes that desire to access the

resource.” *Simmons*, col. 4, lines 56-60. A master resource object located on the master node controls the grant of locks to shadow resource objects located on the nodes on which are located the processes that desire to access the resource. Each shadow resource object is then used to grant locks on the resource to the processes that are located on the same node as the shadow resource object. *See id.*, col. 4, lines 63-65. In stark contrast to Jeffords, *Simmons* teaches that more than one process may be granted a lock for a single resource. *See id.* FIGS. 1a, 1b, and 4.

As described above, independent claim 1 has been amended to specify “receiving a request to modify at least one property associated with the lock object, wherein the request is created using a Web Distributed Authoring and Versioning protocol, originates from a requesting client computer system, and is transmitted over the Internet.” Jeffords and *Simmons*, alone or in combination, fail to teach or suggest the combination of features recited in claim 1. As stated above, Jeffords does not teach that locks have properties, much less that the properties can be modified or changed. Furthermore, Jeffords also fails to teach or suggest the use of the Web Distributed Authoring and Versioning protocol (WebDAV) for sending requests to modify the properties on a lock object.

Although *Simmons* does describe that a property of a lock may be modified, it does not describe the use of WebDAV, or that requests to modify its locks are transmitted via the Internet. Indeed, *Simmons*’ teachings indicate that its system is inconsistent with the use of the Internet and WebDAV (used for accessing resources over the Internet). Specifically, *Simmons* makes no mention of wide-area networks or the Internet, and only mentions local area networks. *See Simmons*, col. 4, lines 18-21 (“For example, the process desiring a lock and the lock resource may reside within different nodes of a multi-processor machine, or on different workstations in a local area network.”). Furthermore, the system implemented by *Simmons* requires that each requesting node (i.e. client) create and store a shadow resource object for every resource that it locks. The shadow resource object is used as a first management level for granting locks to a client for resources stored on a network. If *Simmons*’ system was implemented on the Internet (with tens of thousands of resources), every client would be required to have tens of thousands of shadow resource objects for locking resources on the Internet, which would make such a system inefficient and impractical. Accordingly, not only does *Simmons* fail to teach all the elements of

claim 1, someone of ordinary skill in the art would be guided away from modifying Simmons' system to include all the elements of claim 1.

For these reasons, a *prima facie* case of obviousness has therefore not been established with respect to claim 1. Additionally, claims 2-4, 6, 7, and 18 are also non-obvious in view of the references, as they depend upon claim 1.

Claim 8 has been amended to recite "wherein the lock object comprises a plurality of properties, wherein a first property identifies a lock owner, and wherein the first property may be modified to change the lock owner without unlocking the locked resource." Jeffords does not even teach that locks have properties, much less an ownership property that may be modified. Simmons also fails to teach locks with an ownership property that may be modified. Indeed, Simmons teaches away from such a lock object by indicating that a separate lock is granted to each process. *See Simmons*, FIGS. 1b & 4; and col. 2, lines 31-34 ("[t]o obtain a lock, a process transmits a request for the lock to a lock manager. A lock manager is a process that is responsible for granting, queuing, and keeping track of locks on one or more resources."). Because neither of the reference individually or in combination teaches "the lock object comprises a plurality of properties, wherein a first property identifies a lock owner, and wherein the first property may be modified to change the lock owner without unlocking the locked resource," a *prima facie* case of obvious has not been established with respect to claim 8. Claim 8 is therefore not obvious over Simmons and Jeffords. Claims 9, 19, and 20 are also patentable in view of Jeffords and Simmons, as they depend upon claim 8.

Similarly, claim 11 has been amended to recite "a receive module for receiving resource requests created using a Web Distributed Authoring and Versioning protocol from the plurality of processes, wherein the receive module receives a request transmitted over the Internet from a requesting process that includes modification information concerning at least one property of a lock object associated with a requested resource." As described above with respect to claim 1, Jeffords and Simmons, alone or in combination, fail to teach or suggest that a request to modify a lock property is created using WebDAV and is transmitted over the Internet. For these same reasons, claim 11 is also not obvious in view of Jeffords and Simmons. Claims 12-16, 21, and 22 are also patentable in view of the references, as these claims depend upon claim 11.

In addition to failing to cite references that teach all the elements of the claims, the Office Action also fails to provide the requisite motivation to combine Jeffords and Simmons. Jeffords' teaches exclusive access of resources by only one process. *See Jeffords*, col. 1, lines 25-30. Whereas Simmons teaches a system in which a number of different processes may have locks on a resource. *See Simmons* FIG. 1b and 4. A person of ordinary skill in the art would be guided away from combining the two references, because their teachings are inconsistent. That is, Jeffords' method of exclusivity is not compatible with Simmons teaching of non-exclusivity. Therefore, there is no motivation to combine the two references. For this additional reason, the Office Action fails to establish a *prima facie* case of obviousness, with respect to claims 1-9, 11-16 and 18-22.

Conclusion

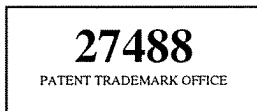
The above amendments and accompanying remarks are believed to be fully responsive to all points raised in the Office Action mailed February 8, 2007. Still, the Office Action may contain other arguments and rejections that are not directly addressed herein because those arguments and rejections are rendered moot in light of the preceding arguments in of patentability. Hence, failure to directly address an argument raised, or statement made, in the Office Action should not be taken as an indication that the Applicants believe the argument to have merit. Furthermore, the claims of the present application may include other features, not discussed in the above remarks, which are not shown, taught, or otherwise suggested by the references cited in by the Examiner. Accordingly, the preceding arguments in favor of patentability are advanced without prejudice to other bases of patentability.

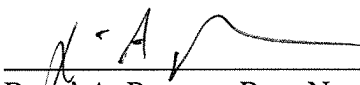
It is believed that no fees are due with this Amendment. However, the Commissioner is hereby authorized to charge any deficiencies or credit any overpayment with respect to this patent application to deposit account number 13-2725.

In light of the above remarks and amendments, it is believed that the application is now in condition for allowance and such action is respectfully requested. Should any additional issues need to be resolved, the Examiner is requested to telephone the undersigned to attempt to resolve those issues.

Respectfully submitted,

Dated: May 8, 2007





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